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NICKEL IN APRIL 2000

In April, reported domestic nickel consumption on a daily average basis was 2% less than that of March, according to the U.S. Geological Survey. Average daily consumption by the stainless steel industry in April was 13% less than the March average of 134 metric tons (t). The decrease for stainless steel was partially offset by a sizable increase in production of cupro-nickel strip for coin blanks. Daily consumption by alloy steel producers—a considerably smaller tonnage than that of stainless steel—increased slightly. Consumption of elemental nickel to make nickel-base corrosion-resistant alloys decreased by 7%. Sales to plating companies averaged 40 metric tons per day (t/d), up 2% from the revised March sales figure. Percentages reported in this paragraph may not be verifiable owing to concealment of individual company proprietary data.

On April 30, U.S. consumer stocks of cathode, pellets, briquets, and powder totaled 2,380 t—4% more than the 2,300 t (revised) for March 31, but 58% less than the 1999 high of 5,690 t reached on January 31 a year ago. Stocks in London Metal Exchange (LME) warehouses worldwide declined for the fifth consecutive month. LME stocks decreased 13% during April to 26,976 t and were down 43% from 46,962 t at yearend 1999. Preliminary data collected by the International Nickel Study Group indicated that, at the end of March 2000, world nickel producers (excluding those in Austria, China, the former Yugoslavia, and the Ural area of Russia) had approximately 90,300 t of Ni in primary products in stock, of which 69,200 t were Class I materials. Class I materials are refined products with a nickel content of 99% or greater (electrolytic cathode, pellets, briquets, rondelles, powder, etc.). Class II materials include ferronickel, nickel oxide sinter, and East Asian utility nickel—products with a nickel content less than 99%.

Trade data for April 2000 will appear in a subsequent issue.

Norilsk Nickel launches 10-year development program requiring 3 to 5 billion dollars [Part 2 of 2]

(Part 1 appeared in the March issue.)

Company overview.—In 1998, RAO Norilsk Nickel was the largest producer of nickel in the world, accounting for about 19% of total refinery production (RAO Norilsk Nickel, 2000a,c). Preliminary data indicate that the company produced 221,000 t of refined nickel and 399,000 t of refined copper in 1999. The company has had difficulty modernizing its operations and reducing its workforce. Norilsk Nickel has a heavy tax burden and, because of the location of the company's operations in the Russian Far North, enormous local social and civic responsibilities. The company continues to subsidize housing, the importation of food, and municipal services in the cities of Norilsk, Monchegorsk, and Zapolyarny. In 1999, the Russian Government placed new restrictions on the export of byproduct platinum, rhodium and other precious metals, seriously impacting the company's earnings for the year. The new export limits prevented Norilsk Nickel from selling more than $300 million worth of platinum and rhodium to the Western World (RAO Norilsk Nickel, 2000b).

Under Russian law, ore reserves do not belong to the company. All usable mineral resources in the Russian Federation are State property and must be worked under license. The licenses granted to Norilsk Nickel's subsidiaries run for 25 years; with most due to expire in 2020. The Federation's Law on State Secrets prohibits Norilsk Nickel from divulging any information on precious metal stocks and only very limited information on nickel production.

Norilsk Nickel has two principal subsidiaries—the Norilsk Mining Company based on the Taimyr Peninsula and the Kola Metallurgical and Mining Company (comprising Pechenganickel and Severonickel). The 10-year development program would allow both subsidiaries to develop new levels in existing underground mines, construct new mines, and carry out local exploration work designed to transform inferred resources into measured reserves. The 10-year program also would include a feasibility study of the Sopcheozerskoe chromite deposits near Monchegorsk. Some of the metallurgical capacity at the Severonickel combine could be converted to the production of ferrochromium and refractories if chromite mining proved feasible.

Expansion of mining operations on the Taimyr Peninsula.—Mine development work to replace declining reserves has intensified, even though some 50 years of reserves still exist.

The bulk of the Taimyr ores come from the Oktyabr and Talnakh deposits. The two deposits reportedly contain more than 35% of the world's nickel reserves (RAO Norilsk Nickel, 2000a). The Oktyabrsky and Taimyrsky underground mines are in the Oktyabr deposit. The Oktyabrsky Mine, commissioned in 1974, is 1,000 meters deep and has almost 3,000 employees. The Taimyrsky Mine is even deeper—1,500 meters—and has about 1,800 employees. The Komsomolsky Mine is in the Talnakh deposit and has some 1,500 employees. The Medvezhy Ruchey (or Bear Creek) open pit, located in the Norilsk-1 deposit, was begun in 1948 and is the oldest active production unit at Norilsk. Other underground mines include the Mayak Mine, the Zapolyarny (or Polar) Mine, and the new Skalisty Mine. Production from the Skalisty Mine will help offset declining output at some of the older mines. Increased production of disseminated "impregnation" ores and high-grade copper ores should compensate for declining production of high-nickel massive sulfide ores.

In 1998, the Norilsk Combine upgraded ore beneficiation operations at its Talnakh concentrator, dramatically improving the quality of the nickel concentrates and increasing yield. The concentrator, built in 1981, employs 718 people and is designed to process 9 million t of ore per year. Despite the improvements, the concentrator is still only operating at 40% of capacity. The combine also has an older concentrating and agglomerating unit at Norilsk. Improvement of ore beneficiation operations would be a key part of the 10-year program. In 1999, the combine replaced key turbines at its No. 1 heating and power plant in the city of Norilsk. The new turbines will help stabilize the supply of electricity to the city, mines, and smelting-refining complexes. Development of the Pelyatka gas condensate field is well underway, and construction of a pipeline from the field to Norilsk has begun. The natural gas is scheduled to reach Norilsk sometime in 2001 (RAO Norilsk Nickel, 2000e).

Development of additional ore reserves at Penchenganickel.—Norilsk Nickel originally had planned to phase out mining in the Pechenga area by 2007. The closure of the mining and smelting operations, however, would have led to a serious decline in economic activity throughout the Nikel district and sharply reduced tax revenues for the local and regional governments. If all of the funding for the 10-year development plan materializes, mining at Pechenganickel may be able to be extended to 2015 (RAO Norilsk Nickel, 2000d).

The Tsentralny Mine accounts for about 85% of the nickel ore mined in the Pechenga area. Much of the mining equipment at the Tsentralny Mine needs to be upgraded or replaced because of excessive wear and tear. In addition, reserves are projected to be exhausted by 2006 if the production level for 2000 is maintained. Additional levels could be developed at the Severny underground mine. About $140 million would be spent on developing new levels in the underground part of the Tsentralny Mine. These new levels would initially provide 2.5 million of ore per year, rising to 4.0-4.5 million t per year by 2015. Reserves would continue to be worked at the Kaula Kotselvaara Mine and the Tsentralny and Zapadny open pits.

Improvements to the Pechenga concentrator would raise output between 7% and 10%. The roaster would be modernized at a cost of about $11 million. Sulfur dioxide emissions in the city of Zapolyarny would be sharply reduced. Company officials would like to close the Nikel agglomeration plant by 2005. The agglomeration plant continues to emit excessive amounts of sulfur dioxide and has been a major source of pollution on the Kola Peninsula since its commissioning in 1945. The total development program for the Pechenganickel operation would cost between $250 million and $300 million.

Questions about the legitimacy of Norilsk's privatization.—On June 20, a Moscow city prosecutor filed a lawsuit seeking to overturn the privatization of Norilsk Nickel (Mining Journal, 2000). The lawsuit could complicate future company plans to raise capital for modernization and development. The lawsuit questions the legality of the 1995 loans-for-shares program that preceded privatization of the giant parastatal enterprise. Under the program, the Russian Government used its equity in Norilsk Nickel as collateral to obtain a $170 million loan from the United Export-Import Bank Open Joint Stock Company (UNEXIM Bank). The original agreement gave UNEXIM Bank, now part of the INTERROS Holding Company, control of 51% of Norilsk Nickel's voting stock. The Russian Government never repaid the loan and Norilsk Nickel was subsequently sold at auction to ZAO SVIFT, an affiliate of UNEXIM Bank, for about $250 million.

UNEXIM Bank is rescheduling its foreign debt, undergoing restructuring, and may merge with ROSBANK, another Interros financial institution. On May 22, holders of UNEXIM Bank eurobonds ratified key parts of the restructuring plan. Fleming UCB is serving as financial adviser to UNEXIM Bank (INTERROS Holding Company, 2000).

References Cited

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TABLE 1
CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND USE 1/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total	Total year to date
1999:					
April	7,740	845	602	9,180	34,200
May	8,110	1,150	693	9,950	44,200
June	8,360	1,200	695	10,300	54,400
July	7,540	1,150	479	9,170	63,600
August	7,220	1,000	349	8,570	72,200
September	7,290	1,490	321	9,100	81,300
October	6,910	1,170	288	8,370	89,600
November	6,900	1,210	457	8,570	98,200
December	7,280	1,060	871	9,210	107,000
January-December	88,200	12,600	6,620	107,000	XX
2000:					
January	6,950	1,380	566	8,900	8,900
February	7,660	1,350	435	9,440	18,300
March	7,950 r/	1,360	775	10,100	28,400
April:					
Steel:					
Stainless and heat resisting	1,980	1,290	W	3,270	14,600
Alloy (excludes stainless)	385	W	W	385	2,020
Superalloys	1,460	--	W	1,460	5,860
Copper-nickel alloys	W	W	--	W	W
Electric, magnetic, and expansion alloys	37	--	--	37	156
Other nickel & nickel alloys	W	W	W	W	W
Cast iron	--	--	W	W	W
Electroplating (sales to platers)	1,200	--	--	1,200	4,620
Chemical and chemical uses	W	--	--	W	W
Other uses	2,720	31	348	3,100	10,600
Total reported	7,780 2/	1,320	348	9,440	37,900
Total all companies (calc) 3/	XX	XX	XX	14,000	56,300
2000: January-April	30,300	5,410	2,120	37,900	XX
1999: January-April	28,600	3,140	2,480	34,200	XX

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Other uses" category. XX Not applicable.
-- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Of consumption, 6,270 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

3/ Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (67.27%) to apparent primary consumption for 1998.

TABLE 2
ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS,
BY FORM AND USE 1/ 2/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total
1999:				
April	3,040 r/	97	364	3,500 r/
May	3,520 r/	145	351	4,020 r/
June	3,760 r/	110	312	4,180 r/
July	3,550 r/	170	263	3,980 r/
August	2,940 r/	315	269	3,520 r/
September	3,090 r/	202	447	3,740 r/
October	2,920 r/	320	507	3,750 r/
November	3,530 r/	441	597	4,570 r/
December	2,670 r/	416	410	3,500 r/
2000:				
January	2,470	317	366	3,150
February	2,430	224	384	3,040
March	2,300 r/	252	252	2,800 r/
April:				
Steel (stainless, heat resisting and alloy)	1,250	(3/)	162	1,410
Nonferrous alloys 4/	1,080	(3/)	(3/)	1,080
Foundry (cast irons)	(3/)	--	(3/)	(3/)
Chemical (catalysts, ceramics, plating salts, etc.) and unspecified uses	53	393	32	478
Total	2,380	393	194	2,970

r/ Revised. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Stocks held by companies that consume nickel in more than one end use category are credited to the major category. Stocks are subject to revisions owing to inventory adjustment.

3/ Included in the "Chemical and unspecified uses" category.

4/ Includes superalloys, nickel-copper and copper-nickel alloys, permanent magnet alloys, and other nickel alloys.

TABLE 3
CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE 1/

(Metric tons, nickel content)

	Consumption			Stocks		
Period	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap
1999:						
April	3,980 r/	969 r/	4,950	3,640 r/	160 r/	3,800 r/
May	4,340 r/	706 r/	5,050 r/	3,170 r/	171	3,350 r/
June	4,600 r/	1,330 r/	5,920 r/	2,770 r/	217	2,980 r/
July r/	3,720	1,080	4,800	2,570	176	2,750
August	4,100 r/	1,090	5,190 r/	2,520 r/	165 r/	2,680 r/
September r/	4,940	1,040	5,970	2,880	158	3,030
October r/	4,750	1,270	6,020	2,690	154	2,840
November	5,840 r/	1,160	7,010 r/	2,780 r/	147 r/	2,930 r/
December r/	5,090	878	5,960	3,670	693	4,360
January-December	53,200 r/	11,900	65,100 r/	XX	XX	XX
2000:						
January	5,750 r/	1,270 r/	7,020 r/	3,430 r/	657	4,090
February	5,490 r/	1,250	6,740 r/	3,680	663	4,340
March	5,810 r/	1,140 r/	6,950 r/	3,420 r/	668	4,090 r/
April	5,500	897	6,400	3,990	673	4,660
2000: January-April	22,600	4,560	27,100	XX	XX	XX
1999: January-April	15,800	3,360	19,200	XX	XX	XX

r/ Revised. XX Not applicable.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Nickel content is calculated from an average nickel content and the reported gross weight of scrap.

3/ Combined consumption and stocks of aluminum-base, copper-base, and nickel-base scrap.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

Period and country of origin	Cathodes, pellets, and briquets	Powder and flakes	Ferro-nickel	Metal-lurgical-grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date 4/	Wrought nickel
1999:										
March	10,700	926	836	366	394	178	235	13,600	36,100	78
April	6,230	769	1,150	306	414	181	302	9,350	45,400	103
May	9,860	575	860	231	428	303	190	12,500	57,900	80
June	13,000	1,080	1,550	399	260	415	241	16,900	74,800	58
July	5,890	939	1,730	--	330	243	232	9,360	84,100	105
August	9,280	790	1,310	285	316	263	161	12,400	96,500	110
September	13,800	818	1,240	243	192	270	270	16,800	113,000	120
October	6,100	748	1,190	224	526	335	238	9,370	123,000	106
November	10,400	741	813	269	685	1,800	219	14,900	138,000	124
December	7,740	511	996	459	428	603	296	11,000	149,000	95
January-December	109,000	9,380	14,300	3,270	4,520	4,960	2,810	149,000	XX	1,090
2000:										
January	10,900	998	1,400	323	521	501	227	14,900	14,900	53
February	11,500	922	1,150	335	399	617	328	15,200	30,100	109
March:										
Australia	513	123	--	--	9	--	--	645	3,880	--
Brazil	100	--	--	--	--	2	--	102	917	--
Canada	5,610	604	--	20	256	506	10	7,010	18,500	(5/)
Colombia	--	--	193	--	--	6	--	199	586	--
Dominican Republic	--	--	934	--	--	4	--	938	2,360	--
Finland	387	168	--	--	--	--	58	613	1,640	--
France	184	--	--	--	111	--	19	314	773	10
Germany	--	4	--	--	148	--	23	175	412	39
Japan	--	1	--	--	4	1	117	123	231	13
Mexico	--	--	--	--	7	158	1	166	618	--
New Caledonia	--	--	450	--	--	--	--	450	1,200	--
Norway	2,720	--	--	--	--	--	--	2,720	5,720	--
Russia	3,090	189	--	--	--	--	--	3,280	7,790	--
South Africa	20	20	--	--	--	--	--	40	161	--
United Kingdom	380	18	--	--	113	--	9	520	1,870	1
Zimbabwe	59	--	--	--	--	--	--	59	289	--
Other	235	58	--	--	191	3	125	612	1,190	33
Total	13,300	1,190	1,580	20	839	680	362	18,000	48,100	96
2000: January-March	35,700	3,110	4,130	678	1,760	1,800	917	48,100	XX	258
1999: January-March	27,100	2,410	3,510	853	940	548	656	36,100	XX	184

XX Not applicable. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ May include revisions for prior months.

5/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 5
U.S. EXPORTS OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

Period and country of destination	Cathodes, pellets, and briquets	Powder and flakes	Ferro-nickel	Metal-lurgical-grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date	Wrought nickel
1999:										
March	36	90	1	105	958	1,850	460	3,500	7,930	63
April	15	69	1	161	989	2,070	334	3,640	11,600	77
May	78	44	--	102	920	1,600	523	3,270	14,800	121
June	54	85	2	94	979	1,950	200	3,360	18,200	59
July	65	76	6	105	725	1,310	363	2,650	20,800	52
August	142	82	9	181	945	1,280	256	2,900	23,700	69
September	74	60	30	230	1,230	1,830	220	3,670	27,400	52
October	105	89	--	57	1,230	2,290	461	4,230	31,600	58
November	74	95	--	108	1,340	1,170	229	3,020	34,700	98
December	85	65	9	60	1,230	2,330	444	4,220	38,900	65
January-December	832	908	61	1,470	12,000	19,500	4,160	38,900	XX	922
2000:										
January	358	87	11	128	1,130	2,040	136	3,880	3,880	86
February	255	83	15	100	1,140	1,230	234	3,050	6,930	39
March:										
Australia	--	--	--	--	--	--	--	--	1	--
Belgium	--	2	--	--	56	41	(4/)	99	222	1
Canada	25	47	5	50	981	419	55	1,580	4,140	29
Germany	1	3	--	--	14	--	13	30	160	5
India	--	(4/)	--	--	--	8	--	8	42	--
Italy	--	1	--	--	--	--	--	1	6	(4/)
Japan	1	5	--	--	188	431	19	644	1,430	2
Korea, Republic of	--	1	--	1	--	2,670	11	2,680	3,530	--
Mexico	58	3	--	--	--	21	12	94	366	7
Netherlands	--	(4/)	--	--	7	--	4	11	40	--
South Africa	--	--	--	--	8	69	--	76	303	--
Spain	--	--	--	--	10	--	--	10	392	--
Sweden	--	--	--	--	27	--	4	31	68	(4/)
Taiwan	--	2	--	--	--	362	13	377	1,150	--
United Kingdom	--	2	--	--	--	--	4	6	15	20
Other	28	64	--	31	4	143	65	338	1,060	13
Total	113	130	5	82	1,300	4,160	200	5,990	12,900	77
2000: January-March	726	300	30	310	3,560	7,420	570	12,900	XX	202
1999: January-March	139	244	3	374	2,390	3,650	1,130	7,930	XX	271

XX Not applicable. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of origin	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
1999:									
March	291	311	427	200	2	135	79	1,450	3,520
April	265	222	344	137	2	33	72	1,080	4,600
May	248	174	348	242	(2/)	244	75	1,330	5,930
June	248	162	373	298	1	74	52	1,210	7,140
July	209	180	341	201	1	94	63	1,090	8,220
August	172	124	332	268	(2/)	65	46	1,010	9,230
September	128	158	246	192	10	35	109	878	10,100
October	85	137	336	281	(2/)	85	95	1,020	11,100
November	141	151	347	146	10	200	70	1,070	12,200
December	145	158	391	224	7	105	73	1,100	13,300
January-December	2,370	2,220	4,100	2,530	34	1,230	820	13,300	XX
2000:									
January	167	156	348	180	1	77	145	1,080	1,080
February	160	116	336	235	10	92	157	1,110	2,180
March:									
Australia	54	--	(2/)	--	--	--	--	55	170
Belgium	31	--	--	(2/)	--	--	--	31	31
Canada	20	--	1	--	(2/)	2	4	27	82
France	--	14	109	34	18	3	(2/)	178	503
Germany	57	58	157	290	(2/)	77	2	642	1,330
Italy	--	95	12	--	--	7	(2/)	115	190
Japan	--	--	1	7	(2/)	114	3	125	157
Mexico	--	--	--	--	--	--	44	44	177
Netherlands	28	--	--	(2/)	--	4	14	46	70
South Africa	25	--	--	--	--	--	--	25	122
Sweden	--	--	157	3	--	8	--	168	463
United Kingdom	48	48	1	--	12	6	3	118	284
Other	16	9	3	(2/)	(2/)	(2/)	13	41	214
Total	279	224	441	334	30	221	83	1,610	3,790
2000: January-March	604	496	1,130	750	42	392	384	3,790	XX
1999: January-March	727	752	1,040	537	3	292	165	3,520	XX

XX Not applicable. -- Zero.
1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 7
U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of destination	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
1999:									
March	896	496	163	688	7	48	206	2,500	7,540
April	910	349	168	688	72	72	266	2,530	10,100
May	545	396	181	614	3	63	193	2,000	12,100
June	682	363	225	620	5	63	272	2,230	14,300
July	702	330	192	486	4	46	483	2,240	16,500
August	643	184	322	570	7	53	273	2,050	18,600
September	806	363	139	542	6	54	164	2,080	20,700
October	927	340	145	538	5	82	204	2,240	22,900
November	595	360	193	679	19	83	352	2,280	25,200
December	771	371	148	546	16	58	215	2,130	27,300
January-December	9,140	4,190	2,180	7,270	161	828	3,550	27,300	XX
2000:									
January	666	323	161	886	1	81	158	2,280	2,280
February	448	479	218	529	16	80	284	2,050	4,330
March:									
Australia	--	--	--	2	--	1	--	3	51
Belgium	--	162	--	21	--	1	4	188	417
Canada	25	67	32	72	40	85	249	570	1,070
France	729	27	4	14	(2/)	--	12	786	1,830
Germany	(2/)	9	1	42	--	(2/)	1	53	289
India	(2/)	--	--	--	--	(2/)	(2/)	(2/)	5
Ireland	--	--	10	(2/)	--	(2/)	(2/)	10	29
Italy	86	2	(2/)	42	(2/)	1	1	132	478
Japan	(2/)	4	2	67	--	(2/)	9	82	193
Korea, Republic of	10	7	(2/)	17	6	1	8	49	203
Mexico	53	(2/)	52	3	1	7	16	132	309
Netherlands	--	(2/)	(2/)	6	--	2	1	9	25
Singapore	6	7	35	5	--	(2/)	(2/)	53	151
Spain	1	--	--	9	--	1	--	11	13
Sweden	--	--	2	10	16	--	5	33	48
Switzerland	5	(2/)	(2/)	2	(2/)	1	2	10	96
Taiwan	--	--	(2/)	2	--	3	--	5	77
United Kingdom	144	112	18	201	2	4	2	483	1,270
Other	30	98	11	21	4	25	60	249	631
Total	1,090	495	167	536	69	132	370	2,860	7,190
2000: January-March	2,200	1,300	546	1,950	87	293	812	7,190	XX
1999: January-March	2,560	1,130	462	1,990	26	255	1,120	7,540	XX

XX Not applicable. -- Zero.
1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 8
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent	
	Wrought	Cast
April 2000:		
Stainless and heat resisting steels	75	25
Alloy steels	100	(1/)
Superalloys	85	15
Copper-nickel alloys	99	1
Other nickel-base alloys	100	(1/)

1/ Less than 1/2 unit.

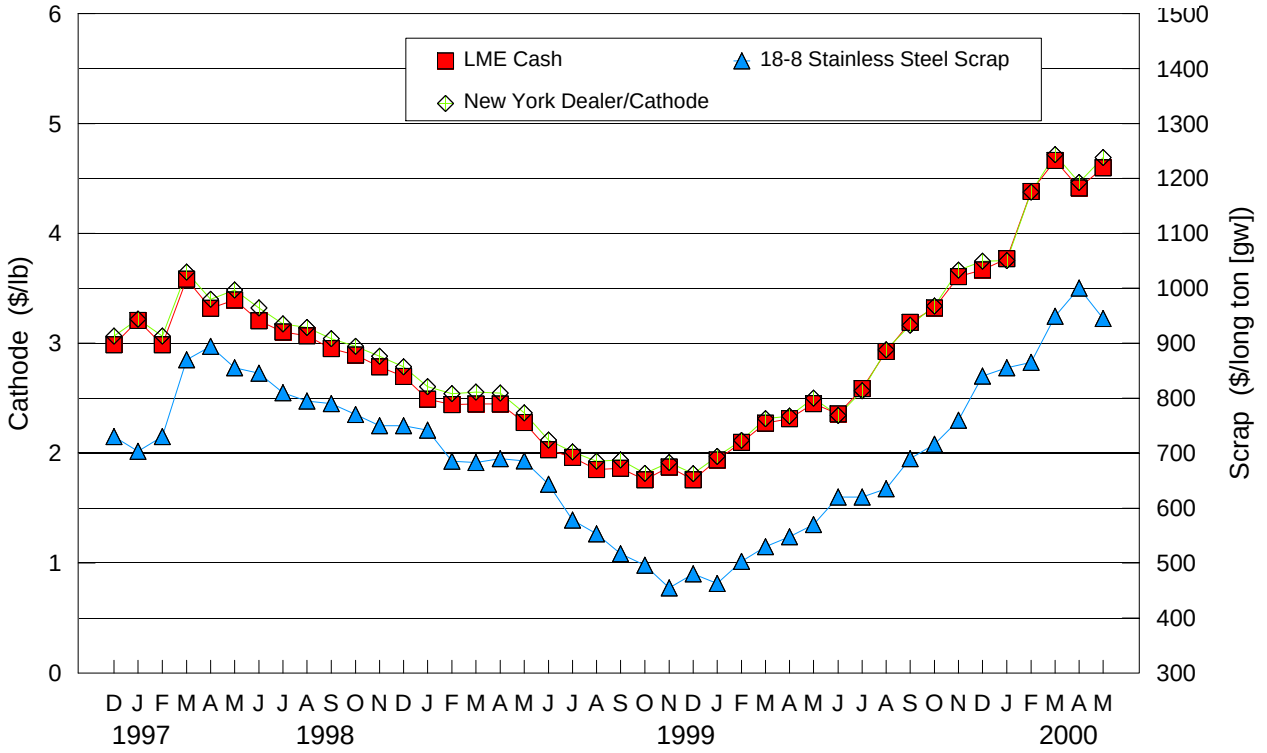
TABLE 9
NICKEL PRICES

Date	Cathode NY Dealer $/lb.	LME Cash $/t	LME Cash $/lb.	18/8 Stainless steel scrap Pittsburgh $/long ton(gw)
2000:				
Average for week ending:				
April 7	4.56-4.79	9,848.000	4.467	990-1,010
April 14	4.37-4.59	9,657.500	4.381	990-1,010
April 21	4.42-4.57	9,587.500	4.349	990-1,010
April 28	4.49-4.64	9,804.375	4.447	990-1,010
May 5	4.59-4.70	9,933.750	4.506	940-950
May 12	4.60-4.70	9,937.000	4.507	940-950
May 19	4.70-4.93	10,454.500	4.742	940-950
May 26	4.86-4.92	10,470.000	4.749	940-950
Average for month of:				
April	4.460	9,727.500	4.412	1,000
May	4.688	10,130.238	4.595	945

Source: Platt's Metals Week and American Metal Market.

1997-2000 AVERAGE MONTHLY PRICES

(Derived from Metals Week and American Metal Market quotations)



1997-2000 STOCKS